

Applicability of the cycloergometer in the control of immobility syndrome during the termination process

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Aplicabilidad del cicloergómetro en el control del síndrome del inmovilismo durante la terminalidad

Received: 18/02/2018
Approved: 09/05/2018
Published: 27/09/2018

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The aim of the present study was to verify the publications about the use of the cycloergometer in patients in palliative care. It is a review performed in the databases: SciELO, PEDro, and PubMed. The following descriptors were used: Palliative Care; Physical Therapy; Exercise and Fatigue. The boolean system was applied, using the technique of crossing of descriptors. Regarding the strategy of selection, the titles and abstracts were considered, following the criteria: publication period from 2013 to 2017; articles in Portuguese and English; the theme of physical exercise on the PC process. Thus, from an initial result of 16 articles, eight were selected, which attended to the criteria. The aerobic physical exercise associated with the anaerobic, found in literature, generates benefits on fatigue and in the syndrome of immobility. However, studies that investigated the use of cycloergometer in patients under palliative care were not found.

Descriptors: Palliative care; Physical therapy specialty; Exercise; Fatigue.

O objetivo do presente estudo foi verificar as publicações acerca da utilização do cicloergômetro nos pacientes em cuidados paliativos. Trata-se de uma revisão realizada nas bases de dados: SciELO; PEDro e PubMed. Foram utilizados os descritores: Cuidados Paliativos; Fisioterapia; Exercício e Fadiga. Aplicou-se o sistema booleano utilizando a técnica de cruzamento dos descritores. Como estratégia de seleção realizou-se a leitura dos títulos e resumos, considerando os seguintes critérios: período de publicação do ano de 2013 a 2017; artigos nos idiomas português e inglês; abordagem do exercício físico em CP. Assim, do resultado inicial de 16 artigos, foram selecionados oito artigos que abordavam os critérios citados. O exercício físico aeróbio associado ao anaeróbio apresentou-se nas publicações gerando benefícios sobre a fadiga e síndrome do imobilismo. No entanto, não se encontrou estudos que investigaram a utilização do cicloergômetro em pacientes sob cuidados paliativos.

Descritores: Cuidados paliativos; Fisioterapia; Exercício; Fadiga.

El objetivo del presente estudio fue verificar las publicaciones acerca de la utilización del cicloergómetro en los pacientes en cuidados paliativos. Se trata de una revisión realizada en las bases de datos: SciELO; PEDro y PubMed. Fueron utilizados los descriptores: Cuidados Paliativos; Fisioterapia; Ejercicio y Fatiga. Se aplicó el sistema booleano utilizando la técnica de cruzamiento de los descriptores. Como estrategia de selección se realizó la lectura de los títulos y resúmenes, considerando los siguientes criterios: período de publicación del año de 2013 a 2016; artículos en los idiomas portugués e inglés; abordaje del ejercicio físico en CP. Así, del resultado inicial de 16 artículos, fueron seleccionados ocho que abordaban los criterios citados. El ejercicio físico aeróbico asociado al anaeróbico, se presentó en las publicaciones generando beneficios sobre la fatiga y síndrome del inmovilismo, sin embargo, no se encontraron estudios que investigaran la utilización del cicloergómetro en pacientes bajo cuidados paliativos.

Descritores: Cuidados Paliativos; Fisioterapia; Ejercicio; Fatiga.

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INTRODUCTION

With the increasing technological advance and the implementation of new protocols of chemotherapy, radiation and surgery, there was an improvement in the prognosis and survival of patients with cancer. It stands out, however that both the treatment and the disease itself generate several complications, which leads to physiological depletion, that can cause hospitalizations in the Intensive Care Unit (ICU) due to the worsening of the clinical aspects.

The stay in the ICU of patients under palliative care for a prolonged period, causes serious functional repercussions, which may lead the patient to the syndrome of immobility, also helping to trigger a fatigue process^{1,2}.

Fatigue is a common symptom in patients under Palliative Care (PC), however, it presents itself with a complex etiology, that involves physical, psychological and social aspects. Fatigue is described being as associated with anxiety, depression, pain, dyspnea, insomnia, loss of appetite, nausea and dizziness, being an important symptom, because it affects the functionality and reduces the quality of life³.

Interventions on patients in primary care (PC) must be multifaceted, and must include, within a multidisciplinary team, the physical therapist. It has been increasingly established that physical therapy plays an important role in the recovery of patients in PC. Through physical exercise, the physical therapy is able to promote preventive intervention strategies to the symptoms of fatigue, with the objective of improving the functional status, promoting a direct impact on the quality of care to the patient in palliative care².

In general PC exercise programs involve kinesiotherapy protocols, with mobilization and passive stretching, active-assisted mobilization, active exercises, transfer of decubitus, ambulation, and, more recently, the use of the cycloergometer⁵.

The cycloergometer is used to perform passive, active and resisted exercises,

bringing many benefits and assisting in the process of functional recovery. Some studies have investigated the applicability of the stationary bicycle in post-cardiac surgery patients under mechanical ventilation and with respiratory complications, and the results have shown benefits in the recovery of respiratory and cardiovascular function and also in the peripheral muscle strength⁶⁻⁸. Thus, the objective of this study was to verify the publications about the use of the stationary bicycle in patients in palliative care.

METHOD

This is a systematic review conducted in the databases: Scientific Electronic Library Online – SciELO; Physiotherapy Evidence Database – PEDro, US National Library of Medicine – PubMed.

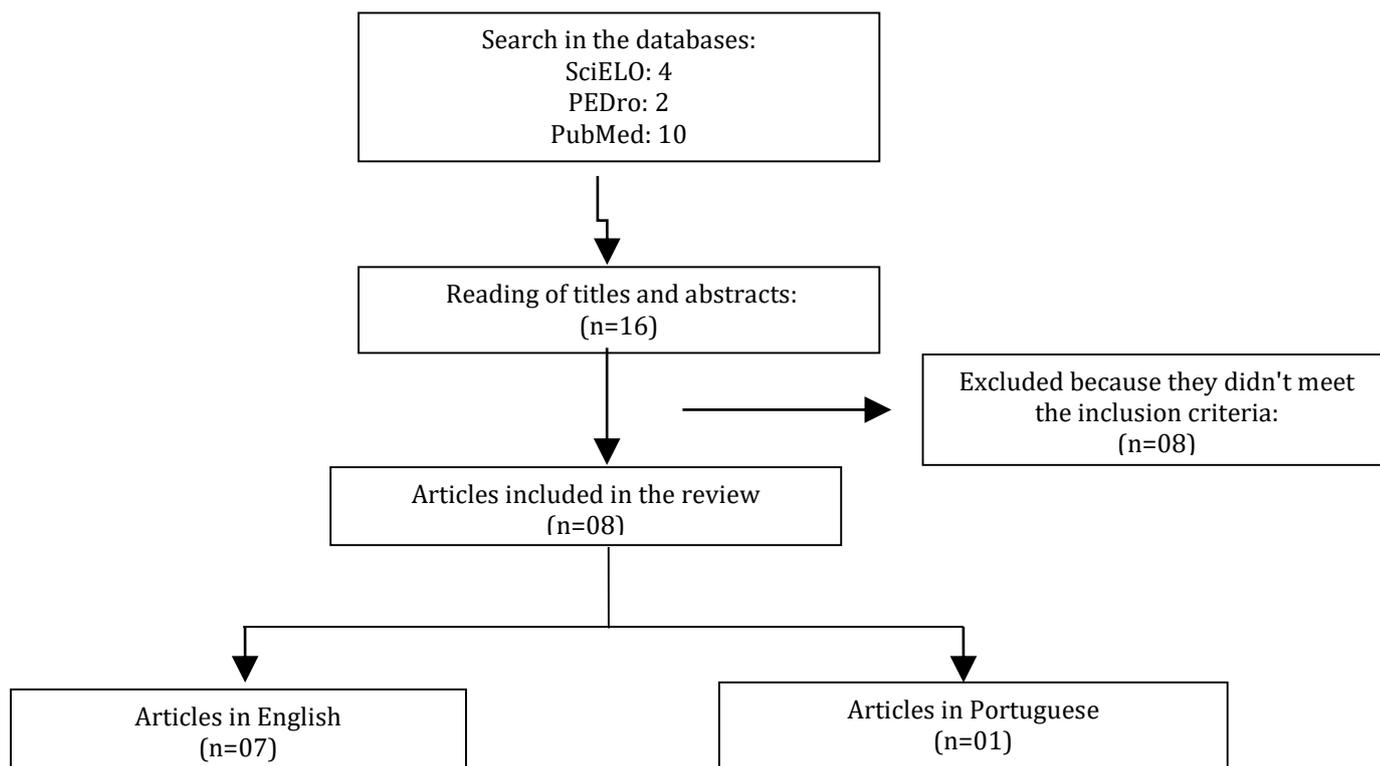
Were used the following descriptors in health sciences: Palliative Care; Physical Therapy; Exercise and Fatigue, they are available for consultation at the virtual health library: <http://decs.bvs.br/>. As a search strategy of articles, the boolean system was applied, using the technique of crossing the descriptors and considering the descriptors that appeared in the titles and body of the text. This search was conducted in October 2017. 16 articles were found.

For the selection of articles, at first, the titles and abstracts were read, considering the following criteria: period of publication, from 2013 to 2017; articles in Portuguese and English; the theme of physical exercise on the PC process.

RESULTS

The steps of the research and the established criteria are presented in Image 1. From the 16 articles found, only 8 were adequate to the inclusion criteria. Of these, 75% of the studies showed the effects of aerobic and resistance exercises on fatigue, 12.5% showed the effects of either aerobic or resistance exercises on the immobility in patients with terminal PC, and 12.5% used the stationary bicycle to promote aerobic exercises, in critical care patients that were not under PC.

Image 1. Articles related to the use of the stationary bicycle in palliative care, from 2013 to 2017. São Paulo, October 2017.



DISCUSSION

The physical exercise with a predominance of aerobic aspects, has a favorable effect on the fatigue presented by patients with diseases that lead to terminality, also showing a significant improvement in the quality of life^{2,3,10}, in addition to contributing to the prophylaxis of complications that come from immobility. However, when there is a combination of aerobic and resistance exercises, the effects on musculoskeletal capacity are better.

A study highlighted the supervised exercise as a safe and effective intervention that improves the fatigue and other complications related to cancer, as well as improving survival, specially when these exercises are aerobic and of resistance⁹.

Another important aspect about the approach of patients with advanced cancer, is that the physical exercise, predominantly aerobic or of resistance, does not worsen the symptoms of pain and fatigue, this fact is important because these symptoms are linked to the decrease in the quality of life⁹.

Other research has demonstrated the potential of a set of planned exercises in the

reduction of the complications associated with immobility (muscle weakness, decreased cardiopulmonary function, rate of falls), as well as in reducing the fatigue related to the state of terminality¹⁰.

The cycloergometer is an equipment that has been gaining more space in the intervention of patients in the ICU and ambulatory, especially for being a facilitator to perform aerobic exercise. One of the studies⁴ showed the capacity of this equipment in causing repercussions on the cardio-respiratory function, increasing the functional capacity, improving the self-perception and functional strength of the quadriceps, in addition to a high degree of acceptance, and the preference of the patients for moving the legs freely on the stationary bicycle.

The benefits of the exercise in controlling fatigue and complications due to immobility are documented in a research found in this review¹⁰, being these exercises aerobic or of resistance.

Another study² demonstrated that in addition to the functional repercussions promoted by the exercise, patients with

advanced cancer also exhibit an improvement in the general well-being and in the reduction of refractory symptoms, especially pain, drowsiness, loss of appetite, and depression. Similarly, another study¹¹ showed that the benefits of exercise also help in the management of common symptoms during this period and encourages patients to live and enjoy life until the end with a better quality, while highlighting the importance of the competence of the multidisciplinary team involved.

The present revision has, as a limitation, the impossibility of presenting the repercussions of the stationary bicycle in patients under PC due to the lack of studies that address the hemodynamic impacts, the effects on fatigue related to the terminality, and parameters for prescription of exercises, as the intensity and time of the intervention, all of which are fundamental characteristics to direct the professionals involved. Thus, the need of investigations on these issues stands out, because the stationary bicycle is a facilitator and a support in programs of kinesiotherapy exercises, and, as a consequence, needs scientific support to guide the prescriptions to patients in PC.

CONCLUSION

Aerobic exercise offers benefits in the care of patients under conditions of terminality, promoting the control of fatigue and complications caused by immobility, and their association with resistance exercises in the intervention plan causes additional benefits to the functionality of the patient.

The exercise is also able to improve the common symptoms of patients in terminality, such as: pain, depression, insomnia and low adherence to treatment. Therefore, it rises the adherence to care, and the will of the patient to experience the time they have.

Only one study reported the impact of the use of the stationary bicycle in patients in the ICU, but studies about its use in PC patients were not found.

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CONTRIBUTIONS

Jealison Rogério Santos has worked in the conception and design of research and in the writing. **Danilo Cândido Bulgo, Érika Adriane Gomes Severo** and **Daniela Marcelino** participated in the writing. **Daniela Santana Polati Silveira** contributed to the critical review.

How to cite this article (Vancouver)

Santos JR, Bulgo DC, Severo EAG, Marcelino D, Silveira DSP. Applicability of the cycloergometer in the control of immobility syndrome during the termination process. 2018 [cited in *insert day, month and year of access*];6(Supl. 2):649-653. Available from: *Insert Access link*. DOI: *insert DOI link*.

How to cite this article (ABNT):

SANTOS, J. R. et al. Applicability of the cycloergometer in the control of immobility syndrome during the termination process. **REFACS**, Uberaba, MG, v. 6, supl. 2, p. 649-653, 2018. Available from: *<insert access link>*. Access in: *insert day, month and year of access*. DOI: *insert DOI link*.

How to cite this article (APA):

SANTOS, J. R., Bulgo, D. C., Severo, E. A. G., Marcelino, D. & Silveira, D. S. P. Applicability of the cycloergometer in the control of immobility syndrome during the termination process. **REFACS**, 6(Supl. 2), 649-653. Recovered in: *insert day, month and year of access* from *insert access link*. DOI: *insert DOI link*.